THESIS/REPORTS
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CANADA
FOREST INSECT LABORATORY
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409 Federal Bldg.
Victoria, B.C.

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(NOT FOR PUBLICATION)

INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
Reed W. Bailey, Director
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE

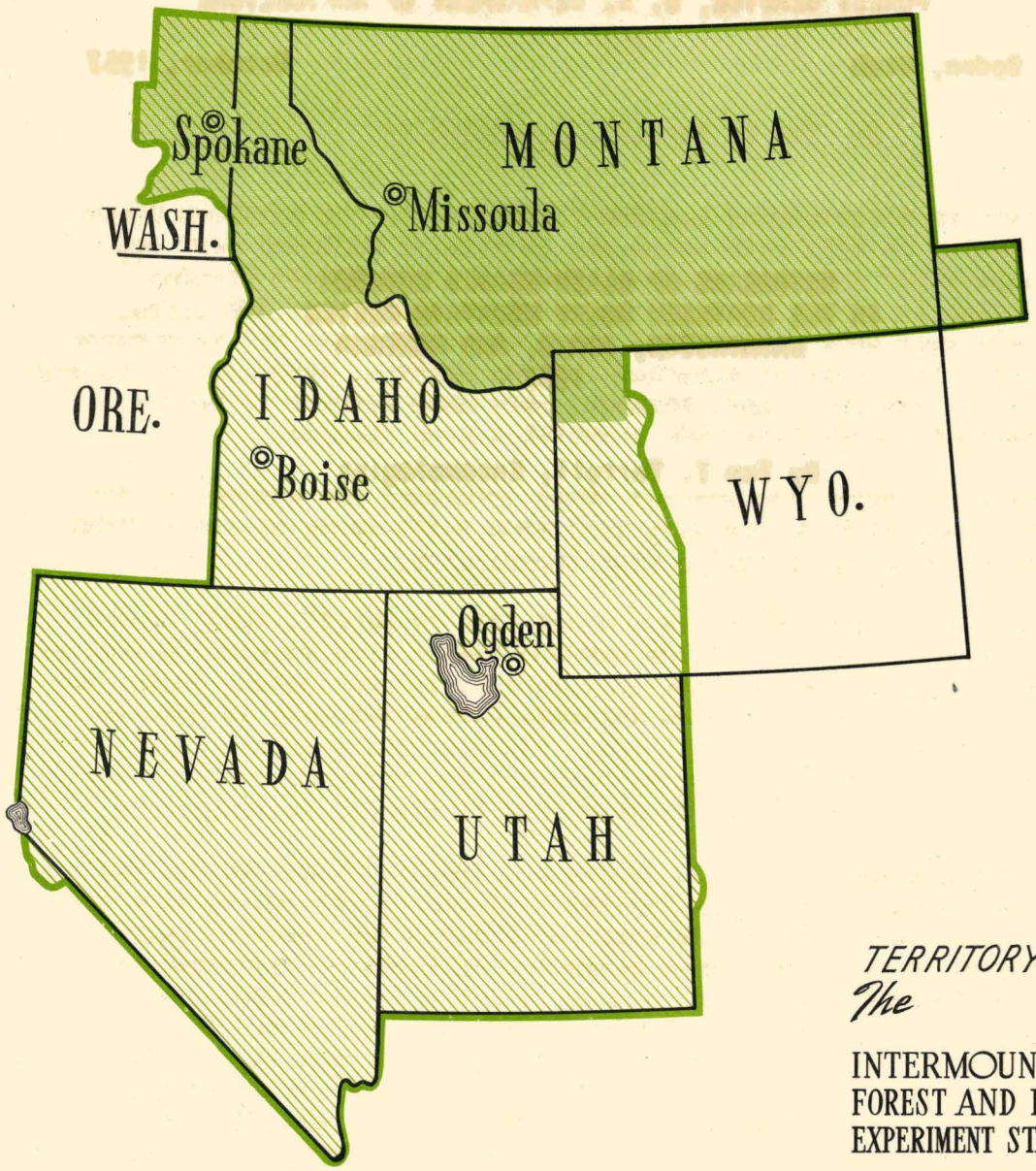
Ogden, Utah October, 1957

OUTBREAKS OF BLACK-HEADED BUDWORM IN THE NORTHERN ROCKY MOUNTAIN REGION WASHINGTON, IDAHO, AND MONTANA 1957

By Tom T. Terrell, Entomologist

Prepared By The
Missoula Forest Insect Laboratory
Missoula, Montana

The AREA COVERED BY THIS REPORT



TERRITORY OF
The
INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION

The MISSOULA FOREST INSECT LABORATORY is a field unit of the Intermountain Forest and Range Experiment Station at Ogden, Utah. The Laboratory conducts forest insect research, surveys forest insect outbreaks, and gives technical advice on cooperative insect control programs in Montana, northwestern South Dakota, northwestern Wyoming, northern Idaho, and northeastern Washington.

The functions are conducted in the remaining station territory by staff entomologists at Ogden, and Boise, Idaho.

OUTBREAKS OF BLACK-HEADED BUDWORM IN THE NORTHERN ROCKY MOUNTAIN REGION WASHINGTON, IDAHO, AND MONTANA 1957

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409 Federal Bldg.
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By Tom T. Terrell, Entomologist

Infestations of black-headed budworm[1/] developed in the Northern Rocky Mountain Region in 1956 with outbreaks in Glacier National Park and in the Kaniksu and Kootenai National Forests in Idaho and Montana[2/]. Available data in 1956 estimated the infested area at 17,500 acres, but probably much more infestation was present that was not discovered or reported. Tree species attacked include hemlock, Douglas-fir, spruce, and true firs; the outbreaks, however, were most evident in mature western hemlock timber types and associated tree species.

The only control operation against these outbreaks was undertaken in Glacier National Park during July 1957 when 6,375 acres of infestation were treated by aerial spraying with insecticide.

During the latter part of July and again late in August, 1957, aerial surveys were made over all of the hemlock timber type acreage in Glacier Park, and in the Kaniksu and Kootenai Forests in Washington, Idaho, and Montana. A part of the Flathead National Forest adjacent to Glacier Park was also covered in the surveys. Visible damage mapped from the air totaled more than 30,000 acres (table 1 and attached maps). This acreage is in addition to the treated area in Glacier National Park.

Although these areas of visible damage are labeled "black-headed budworm" infestation, other insects are involved. A sample collection from the Halverson Creek drainage on the Kootenai Forest, for example, contained larval stages of 60 black-headed budworms, 39 hemlock sawflies[3/], and 12 spruce budworms[4/]. A similar sample from the Spread Creek drainage contained 18 black-headed budworm larvae or pupal skins and 30 sawfly larvae. Sawfly larvae were found by field examinations in practically all the defoliated areas visited. While these field collections are not regarded as a true cross section of the defoliators, they do serve to indicate the presence and abundance of associated insects.

1/ *Acleris variana* Fern.

2/ Terrell, Tom T. Black-headed budworm infestations on the Kootenai and Kaniksu National Forests, Montana and Idaho, 1956. Report of the Intermountain Forest and Range Experiment Station, Forest Service, U. S. Department of Agriculture, Ogden, Utah, October 1956 (mimeographed).

3/ *Neodiprion* sp.

4/ *Choristoneura fumiferana* (Clem.).

Infestations of black-headed budworm are also widely distributed elsewhere in the Northern Rocky Mountain Region. Visible areas of damage as shown on the appended aerial survey maps indicate only the areas of high 1956 or 1957 defoliator population. Ground examinations reveal lighter infestations where the damage is below the point of aerial visibility. Such infestations have been found in many drainages along the western part of the Kaniksu Forest in Washington where the larval feeding was found to be largely on grand fir foliage and to a lesser extent on Douglas-fir. The principal drainages in which infestations were found were Browns Creek, Skookum Creek, CCA Creek and Mill Creek; undoubtedly similar conditions exist in other drainages. East of the Continental Divide in Montana, black-headed budworm larvae were recorded by mortality checkers during the 1957 spruce budworm control project on all control units except the Hebgen Lake unit. While the black-headed budworm larvae found were not many in most control units, a considerable number of them were recorded on the Madison unit in the Beaverhead Forest south of Ennis, Montana.

From the information available it seems evident that the black-headed budworm and associated defoliating insects are prevalent over a wide area in the Northern Rocky Mountain Region. Infestations vary from light insect populations, where little damage to foliage occurs, to quite heavily damaged stands. Although the larval stages of these insects feed on several tree species, the greatest damage seems to occur in mature hemlock types. It is for these type-areas that the most concern is felt and where the damage is aerially visible.

CONTROL RECOMMENDATIONS

Limited ground examination indicates that the black-headed budworm population will be less in 1958 than in 1957 in the hemlock stands. On the basis of present knowledge, control measures against these black-headed budworm outbreaks are not felt to be advisable and are therefore not recommended.

Table 1.--Acreage of visible black-headed budworm damage by forest areas and drainages

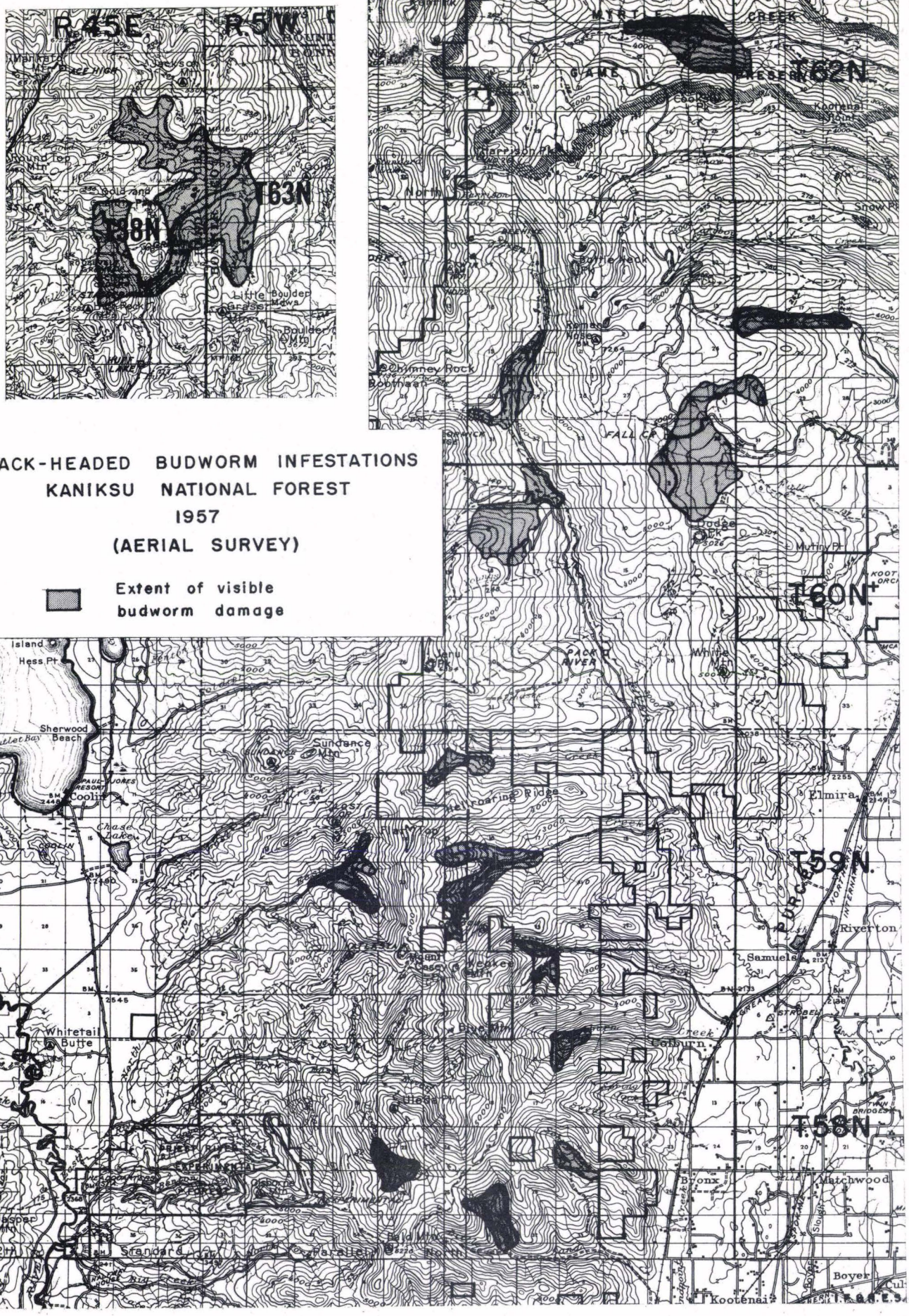
Forest Area	Drainage	Acres
Kootenai N. F.	Pete Creek	275
" " "	Spread Creek	975
" " "	Hellroaring Creek	625
" " "	N. Fk. Meadow Creek	350
" " "	S. Fk. Meadow Creek	585
" " "	Burnt Creek	300
" " "	Fourth of July Creek	390
" " "	Raymond Creek	600
" " "	North Callahan Creek	1,130
" " "	South Callahan Creek	430
" " "	N. Fk. Keeler Creek	350
" " "	Keeler Creek	2,000
" " "	S. Fk. Keeler Creek	200
" " "	Hiatt Creek	120
" " "	Spar Creek	820
" " "	Ross Creek	820
TOTAL KOOTENAI NATIONAL FOREST		9,970

(continued)

Table 1.--Acreage of visible black-headed budworm damage by forest areas and drainages, concluded

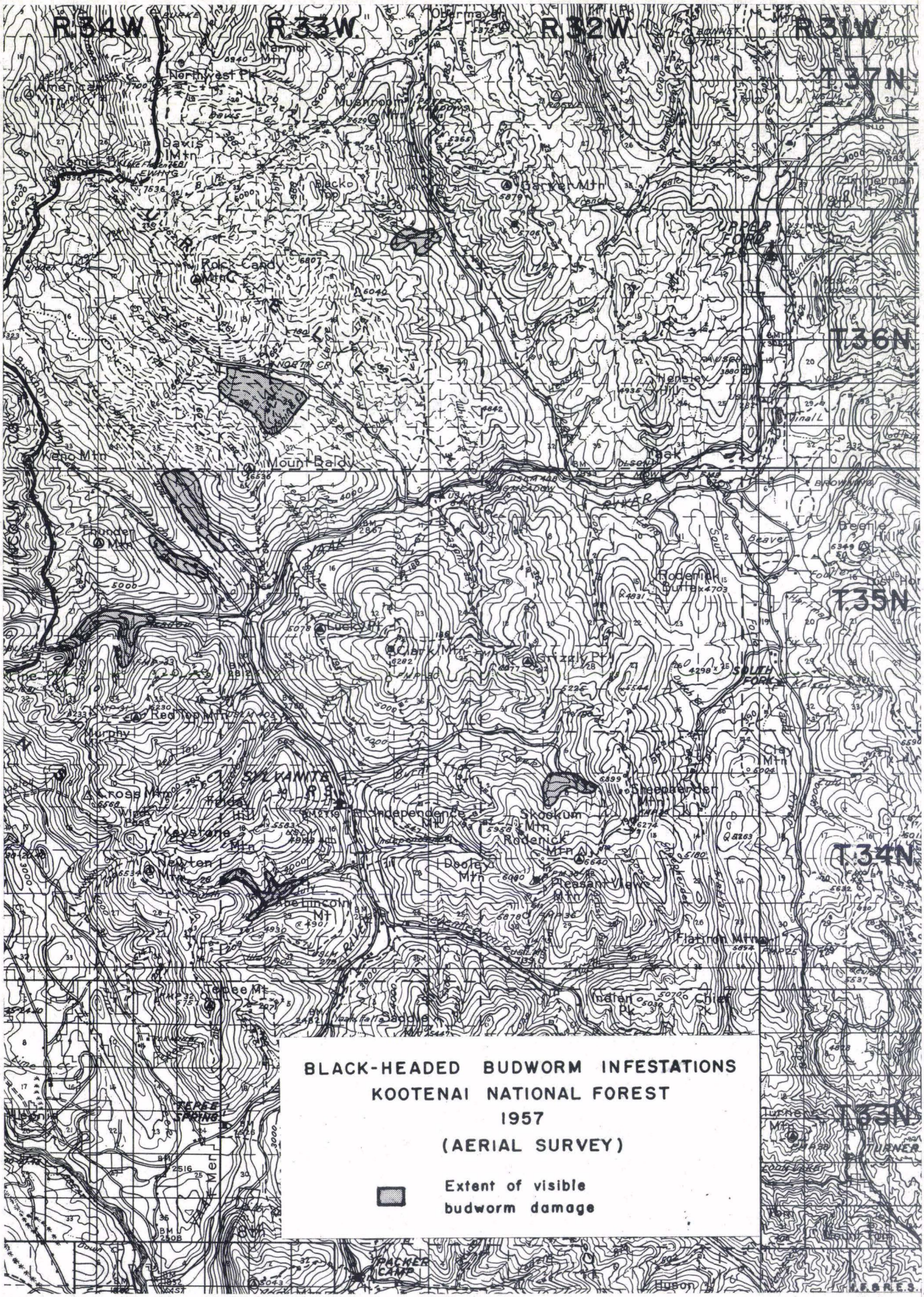
Forest Area	Drainage	Acres
Kaniksu N. F.	Grouse Creek	500
" " "	Lightening Creek	5,225
" " "	Gold Creek[1/]	5,460
" " "	Myrtle Creek	1,400
" " "	Ruby Creek	550
" " "	Pack River	780
" " "	McCormick Creek	1,365
" " "	Hellroaring Creek	350
" " "	N. Fk. E. River	620
" " "	Caribou Creek	1,100
" " "	Berry Creek	300
" " "	Colburn Creek	300
" " "	Uleda Creek	350
" " "	Schweister Creek	275
" " "	Little Sand Creek	585
" " "	Falls Creek	2,400
TOTAL KANIKSU NATIONAL FOREST		21,560
Glacier Nat'l Park	Camas Creek	470
TOTAL ALL AREAS		32,000

1/ Includes part of the N. Fk. Granite Creek.



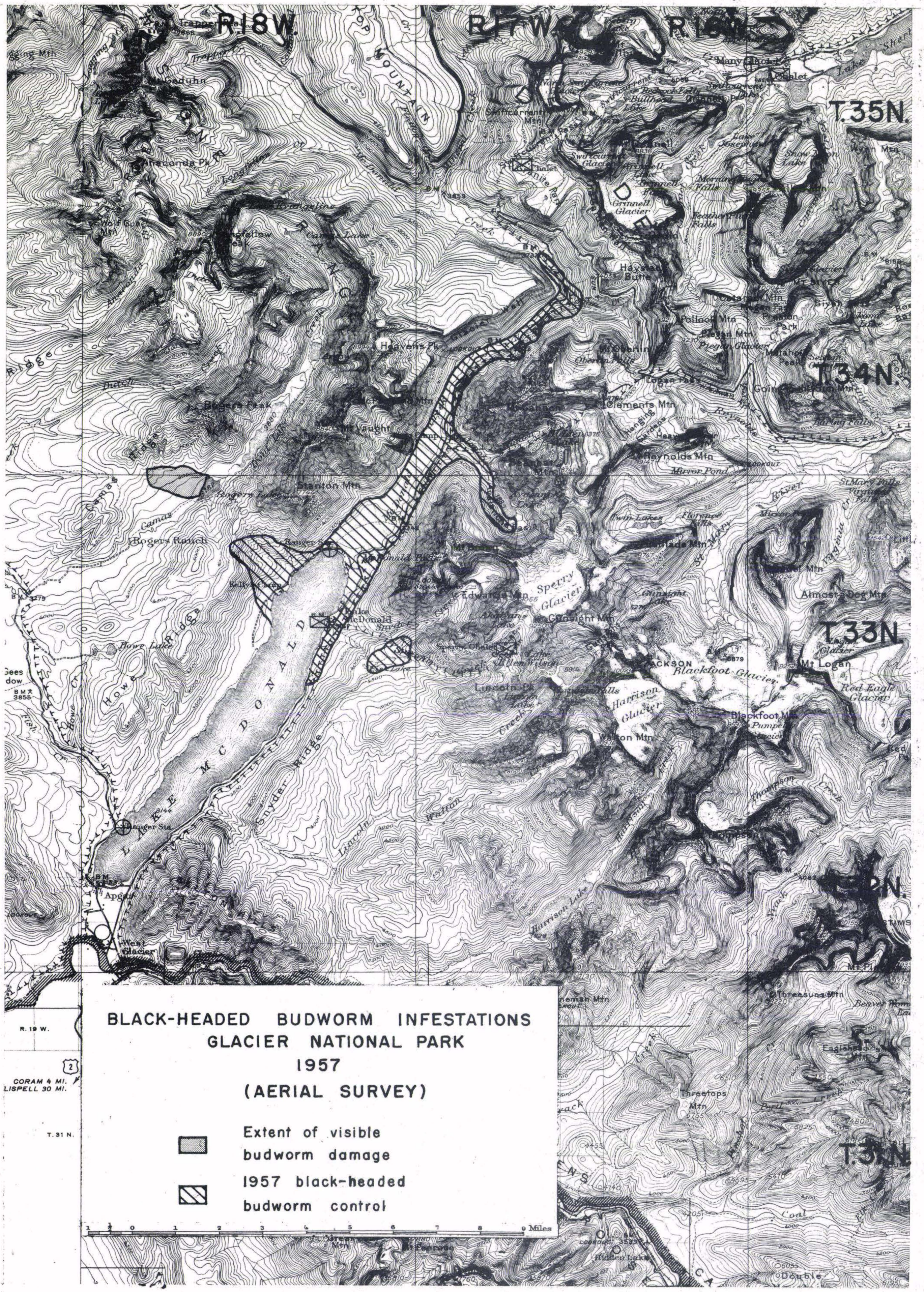
BLACK-HEADED BUDWORM INFESTATIONS
KANIKSU NATIONAL FOREST
1957
(AERIAL SURVEY)

Extent of visible budworm damage


R.34W.
R.33W.
R.32W.
R.31W.
T.37N.
T.36N.
T.35N.
T.34N.
T.33N.
Mermot Mtn
Northwest Pk
Davis Mtn
Rock Candy Mtn
Mount Baldy
Keno Mtn
Thunder Mtn
Red Top Mtn
Murphy Mtn
Cross Mtn
Kaysarie Mtn
Newton Mtn
Pete Lincoln Mt
Squaw Mtn
Saddle
Barker Mtn
Hensley
Beetle Hill
Roderick Butte
Clark Mtn
Grizzly Pk
Clay Mtn
Sheepeater Mtn
Skookum Mtn
Roderick Mtn
Dooley Mtn
Pleasant Valley Mtn
Flatiron Mtn
Indian Chief
Independence Mt
Packer Camp
Huson
BLACK-HEADED BUDWORM INFESTATIONS
KOOTENAI NATIONAL FOREST
1957
(AERIAL SURVEY)
Extent of visible budworm damage

BLACK-HEADED BUDWORM INFESTATIONS
KANIKSU and KOOTENAI NATL. FORESTS
1957
(AERIAL SURVEY)

Extent of visible budworm damage


BLACK-HEADED BUDWORM INFESTATIONS
GLACIER NATIONAL PARK
1957
(AERIAL SURVEY)
Extent of visible budworm damage
1957 black-headed budworm control
Miles
R18W.
T.35N.
T.34N.
T.33N.
R. 19 W.
CORAM 4 MI.
LISPELL 30 MI.
T. 31 N.
Lake McDonald
Snyder Ridge
Sperry Glacier
Blackfoot Glacier
Harrison Glacier
Stanton Mtn
Rogers Peak
Heavens Pk
Edwards Mtn
Gunsight Mtn
Lincoln Pk
Reynolds Mtn
Clements Mtn
Pollock Mtn
Apgar
West Glacier
Threetops Mtn
Almost-a-Dog Mtn
Mt Logan
Red Eagle Glacier
Howe Lake
Howe Ridge
Rogers Ranch